

## Claims

1. A catalyst system obtainable by the process comprising the following steps:
  - a) contacting:
    - (i) a partially dealcoholated adduct of formula  $MgT_2 \cdot wROH$  wherein T is chlorine, bromine, or iodine; R is a linear or branched  $C_1-C_{10}$  alkyl radical, w ranges from 3 to 0.1, being also a non integer number; with
    - (ii) an organo-aluminium compound of formula  $H_eAlU_{3-e}$  or  $H_eAl_2U_{6-e}$ , wherein the U substituents, same or different, are hydrogen atoms, halogen atoms, or hydrocarbon radicals containing from 1 to 20 carbon atoms optionally containing silicon or germanium atoms; with the proviso that at least one U is different from halogen, and e ranges from 0 to 1, being also a non-integer number;

to obtain an adduct of formula (I)

$$MgT_2 \cdot yAlQ_j(OR)_{3-j} \quad (I)$$

wherein

y ranges from 1.00 to 0.05;

Q has the same meaning of U hydrogen and halogen atoms being excluded;

R is as described above

and j ranges from 0.01 to 3.00, being also a non-integer number.
  - b) contacting the product obtained from step a) with at least one metallocene compound having titanium as central metal and at least one ligand having a cyclopentadienyl skeleton;

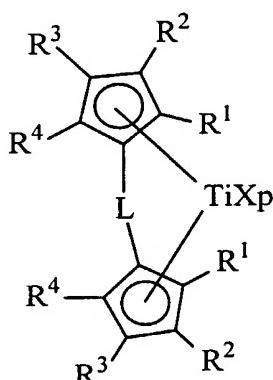
with the proviso that the metallocene compound of step b) is not previously treated with an organo-aluminium compound of formula  $H_eAlU_{3-e}$  or  $H_eAl_2U_{6-e}$ , or with an alumoxane.

  2. The catalyst system according to claim 1 wherein in the partially dealcoholated adduct of formula  $MgT_2 \cdot wROH$  T is chlorine; R is a linear  $C_1-C_{10}$  alkyl radical; w ranges from 3 to 0.5.
  3. The catalyst system according to claims 1 or 2 wherein in the organo-aluminium compound of formula  $H_eAlU_{3-e}$  or  $H_eAl_2U_{6-e}$ , U is a linear or branched  $C_1-C_{20}$ -alkyl radical.
  4. The catalyst system according to anyone of claims 1 to 3 wherein in the adduct of formula (I)

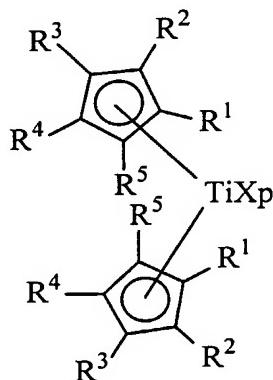


y ranges from 0.50 to 0.10; j ranges from 2.50 to 2.00.

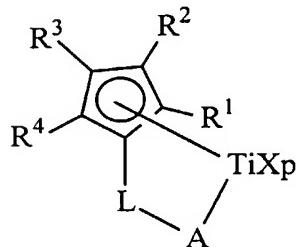
5. The catalyst system according to any one of claims 1 to 4 wherein the adduct of formula (I) has a surface area (BET) higher than  $30 \text{ m}^2/\text{g}$ .
6. The catalyst system according to anyone of claims 1 to 5 wherein the amount of titanocene compound supported on the adduct of formula (I) in step b) is generally between  $1000 \mu\text{mol/g}$  of support and  $1 \mu\text{mol/g}$  of support.
7. The catalyst system according to anyone of claims 1 to 6 wherein the titanocene compounds to be used in step b) belong to the following formulas (II), (III), (IV) or (V):



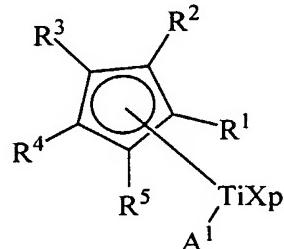
(II)



(III)



(IV)



(V)

wherein

Ti is titanium;

the substituents X, equal to or different from each other, are monoanionic sigma ligands selected from the group consisting of hydrogen, halogen,  $\text{R}^6$ ,  $\text{OR}^6$ ,  $\text{OCOR}^6$ ,  $\text{SR}^6$ ,  $\text{NR}^6_2$  and  $\text{PR}^6_2$ , wherein  $\text{R}^6$  is a hydrocarbon radical containing from 1 to 20 carbon atoms optionally containing one or more Si or Ge atoms;

p is an integer ranging from 1 to 2;

L is a divalent bridging group selected from  $\text{C}_1\text{-C}_{20}$  alkylidene,  $\text{C}_3\text{-C}_{20}$  cycloalkylidene,  $\text{C}_6\text{-C}_{20}$  arylidene,  $\text{C}_7\text{-C}_{20}$  alkylarylidene, or  $\text{C}_7\text{-C}_{20}$  arylalkylidene radicals optionally

containing heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements, and silylidene radical containing up to 5 silicon atoms

each R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup>, equal to or different from each other, is a hydrogen atom, a C<sub>1</sub>-C<sub>40</sub> hydrocarbon group optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements; or two adjacent R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> form one or more 3-7 membered ring optional containing heteroatoms belonging to groups 13-17 of the periodic table;

A is a NR<sup>8</sup>, O, S radical, wherein R<sup>8</sup> is a C<sub>1</sub>-C<sub>20</sub> hydrocarbon group optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

A<sup>1</sup> is a hydrogen atom, a halogen atom, R<sup>6</sup>, OR<sup>6</sup>, OCOR<sup>6</sup>, SR<sup>6</sup>, NR<sup>6</sup><sub>2</sub> and PR<sup>6</sup><sub>2</sub>, wherein R<sup>6</sup> is as described above; otherwise A<sup>1</sup> is a NR<sup>9</sup> radical wherein R<sup>9</sup> is a C<sub>1</sub>-C<sub>40</sub> hydrocarbon group optionally containing one or more heteroatoms belonging to groups 13-17 of the Periodic Table of the Elements;

8. A process for (co)polymerizing olefins containing from 2 to 20 carbon atoms comprising contacting one or more of said olefins under polymerization conditions in the presence of the catalyst system of claims 1-7.
9. The process according to claim 8 wherein one or more alpha-olefins are (co)polymerized.
10. The process according to claim 9 wherein said alpha olefins are propylene, ethylene, 1-butene, 1-hexene and 1-octene.